PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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ORDINARY MEETING

WEDNESDAY, 17th JANUARY, 1962, at 5.30 p.m. (Tea 5 p.m.)

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 6th December, 1961.
2. Recommendation of candidates for Fellowship. First reading.
3. Recommendation of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 37].
6. Nomination of Officers and Council for 1962. Second reading.
7. Admission of Fellows.
8. Exhibits.
9. Communications.

1. Mr. J. M. Baker

(*Forest Product Research Laboratory, Princes Risborough*)

Studies on the oak pinhole borer *Platypus cylindrus* F.
(Coleoptera : Platypodidae)

[ABSTRACT]

P. cylindrus is the only species of the Platypodid ambrosia beetles in this country, and is an insect of economic importance in unseasoned oak logs.

Emergence takes place throughout the year, but the main emergence season is June–September ; only during these months does spread of attack take place. Boring is invariably started by the male, the female arriving later, and after copulation taking over the construction of the tunnel. Only a single copulation takes place, sperm being stored in the spermatheca of the female for up to three years. The egg-laying capacity of the female increases as the galleries become more extensive. All stages from egg to teneral adults can be found throughout the year in well-developed gallery systems.

Larvae and adults feed on " ambrosia fungi ", but some wood is also eaten and after comminution by passage through the gut may play a part in forming the substrate for the fungi.

The associated fungi have been studied *in situ* in the tunnels and in pure culture.

The same fungi have been isolated from emerged beetles using the " fractional sterilisation " technique of Francke-Grosmann. The relationship between the insect and the ambrosia fungi is complex ; at least four species of fungi are concerned but their relative importance is uncertain.

Attempts to rear the insect on fungal cultures were unsuccessful.

2. Miss Jean M. Taylor

(*Forest Products Research Laboratory, Princes Risborough*)

A rearing technique for *Theocolax formiciformis* Westwood (Hymenoptera: Chalcididae), a parasite of *Anobium punctatum* DeGeer (Coleoptera: Anobiidae).

[ABSTRACT]

During investigations on the common furniture beetle, *Anobium punctatum* DeGeer, it has been observed that *Theocolax formiciformis* Westwood adults emerge from infested plywood in small numbers throughout the year. In early summer, however, mass emergence takes place at the time when fully grown *Anobium* larvae are near the surface of the wood. These parasites lay eggs on or near larvae either by burrowing along *Anobium* tunnels or by inserting their ovipositor through the thin external layer of wood. The latter method of oviposition can be used to rear these insects in such a way that observations of the various stages in the life cycle are facilitated.

There is evidence of survival of *Theocolax* after treatment of infested wood with gamma rays and high frequency heat at dosages lethal to *Anobium*.

NOTICES

The **Annual Meeting** will be held on *Wednesday, 7th February*, 1962 at **5 p.m.,** and will be followed by tea and an informal conversazione in the Library.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 6TH DECEMBER, 1961

Professor G. C. VARLEY, President, in the Chair

Present, 48 Fellows and 8 Visitors

The minutes of the Ordinary Meeting held on 1st November were confirmed and signed by the President.

The names of the following candidates for election were read for the first time: Mr. Michael Clifford Cooper; Mons. Jean Gouillard; Mr. Mahesh Datta Jha; Mr. Colin Johnson; Mr. Laughton Lowe-Willetts, B.Sc.; Squadron Leader James Gordon McCathie, R.A.F. (Retd.); Mr. Hugh Arthur Walter Southon; and Mr. Ahmad Yunus, B.Sc.,

For the second time (taken as read):

Mr. David Victor Alford; Mr. Charles Ragnar Buckingham Baker; Dr. Santosh Kumar Banerjee, B.Sc., Ph.D.; Mr. Wilfred Thurairajah Chellappah; Mr. James Stephen Charles Dealey; Mr. Jorge Paulo Andrade Cancela da Fonseca; Professor Oswaldo Paulo Forattini, M.D.; Mr. O. P. Garg; Dr. Gordon Heath; Mr. Philip John Hunter, B.Sc.; Mr. R. Kumar; Mr. Abdulrahman Salim Msangi, B.Sc.; Mr. Shyam Behari Singh; Mr. Richard John Snider; and Mr. Tony Johnson Wilkes.

The Secretary read the names of the following newly elected Fellows of the Society:

Mr. Imtiaz Ahmad, 14, Emperors Gate, London, S.W.7; Mr. Nazir Ahmad Aslam, 100, Pakistan Quarters, Lawrence Road, Karachi-3, Pakistan; Dr. P. V. Ananthakrishnan, M.Sc., Ph.D., Dept. of Zoology, Banaras Hindu University, Varanasi-5, Uttar Pradesh, India; Mr. Peter Lawrence Napier Bax, M.A., Veterinary Research Laboratory, P.O. Kabete, Kenya; Mr. Terrence Victor Bourke, B.Sc., c/o Post Office, Graman, 5N, N.S.W., Australia; Mr. John Hugh Brown, B.Sc., M.Sc., Director, Entomology & Vector Control, Alberta Department of Public Health, Edmonton, Alberta, Canada; Professor Michio Chujo, Entomological Laboratory, Kagawa University, Takamatsu-shi, Japan; Mr. Gordon Richard Conway, B.Sc., Dept. of Agriculture, Jesselton, British North Borneo; Captain Anthony Crawforth, R.A.S.C., 111 Coy. R.A.S.C., British Forces Post Office 44; Mr. Johannes Human Giliomee, M.Sc., Dept. of Zoology, Imperial College, London, S.W.7; Mr. Robert Wilhelm Grünwaldt, Waltherstrasse 19, Munich, 15, Germany; Mr. Philip Edwin Howse, 6 Ravenscourt Square, Hammersmith, W.6; Mr. Henry Mark Jackson, The Old Rectory, Lamyatt, Shepton Mallet, Somerset; Dr. Ibrahim Akif Kansu, A.U.Ziraat Fakultesi, Bitki Koruma, Kursusu, Ankara, Turkey; Mr. Trevor John Martin, The Tan House, Bromyard, Herefordshire; Mr. Anzar Husain Naqvi, Indian Lac Research Institute, Namkum, (Ranchi), Bihar, India; Mr. Narendreshwar Bux Rai, Indian Lac Research Institute, Namkum, (Ranchi), Bihar, India; and Mr. Richard Graham Thimann, 53, Burlington Road, Sherwood, Nottingham.

Thanks were voted to donors of gifts to the Library since the last meeting.

The Secretary read for the first time the following names of Fellows nominated by the Council to serve as Officers and Council for 1962:

President: Professor G. C. Varley
Treasurer: Dr. C. G. Butler
Secretary: Dr. Paul Freeman
Editor: Mr. W. H. Potts

Other Members of Council:

Mr. R. B. Benson
Dr. J. D. Carthy
Dr. K. U. Clarke
Dr. M. I. Crichton
Mr. R. G. Davies
Dr. J. E. Harker
Dr. P. T. Haskell
Dr. C. G. Johnson
Dr. B. R. Laurence
Dr. A. D. Lees
Mr. R. M. Mere
Mr. G. E. J. Nixon
Dr. T. R. E. Southwood

Alternative nominations, supported by four properly qualified Fellows of the Society, should reach the Secretary before the meeting to be held on 17th January, 1961.

Mr. Imtiaz Ahmad, Mr. E. Bursell, Mr. J. H. Giliomee, Mr. H. J. B. Lowe and Dr. A. H. B. Rydon signed the Obligation Book and were admitted Fellows of the Society.

The Honorary Secretary, on behalf of **Mr. D. G. Sevastopulo,** made the following communication on the effect of hydrocyanic acid on Zygaenidae:

" With reference to the Hon. Miriam Rothschild's remarks at the meeting on 5th July, on the effect of hydrocyanic acid on Zygaenidae, it may be of interest to record that Zygaenids succumb rapidly to the fumes of Tetrachlorethane. Two other highly cyanide-resistant groups, the Danaidae and Acraeidae, also die rapidly in Tetrachlorethane.

" Insects belonging to these three families are still flying about in a cyanide bottle long after everything else is dead, but in the fumes of Tetrachlorethane they live no longer than, say, a Pierid or Lycaenid."

The Hon. Miriam Rothschild exhibited, on behalf of **Mr. Robert Ford,** a female of the Crimson Speckled (*Utethsia pulchella* L.), which he had captured on 5th September in a moth trap (lit by an ordinary electric bulb) in the garden at Ashton Wold. This was the first record for the county of Northampton and one of the most northerly of the 1961 invasion.

Miss Rothschild said that during a recent collecting trip in Israel, Charles Lane had noted that the Crimson Speckled was another species very resistant to cyanide. It survived, apparently quite unharmed, a spell of over 30 minutes in a killing bottle in which the Cinnabar Moth (*Hypocrita jacobaeae* (L.)), several species of Hawk Moths and various Noctuids died within three minutes. Other aposematic Lepidoptera besides Zygaenids, such as Danaidae or Acraeidae, were also cyanide-resistant. However, this phenomenon could not be a side effect of some metabolic process common to all aposematic species with distasteful qualities, slow (if sustained) flight and the ability to withstand crushing and wounding, since the Cinnabar, which also possessed all these characteristics, was highly sensitive to cyanide. The whole subject seemed worthy of further investigation.

In a reply to a question by Miss Waloff as to whether these insects were affected by insecticides, Miss Rothschild said it seemed very likely that cyanide-resistant species had a modified respiratory system, one of the characteristics of which was probably independence of cytochrome. The slow flight and sluggish behaviour, coupled with the ability for long migratory flights seemed rather suggestive. Dr. H. E. Hinton, at the meeting on 5th July, had said he considered the flavo-protein systems would seem too slow for an active insect like the Burnet.

The President made a communication on variations in scent distribution organs in the genus *Leucania* (Lepidoptera : Noctuidae). F. N. Pierce (*Genitalia of British Noctuidae*, 1909) reported the presence of fascicles of hair (" hair pencils ") at the base of the abdomen in many Noctuidae. The structures in males of *Leucania* fell into three groups :

(A). Most British species have hair fascicles on the second abdominal segment, which can be spread into fans by muscular contraction. At rest the fascicles are hidden in pleural folds in segments 2–4. The fans smell strongly of almonds. Examples are *Leucnia impura* (Hüb.), *pallans* (L.), *lithargyriia* (Esper) and *conigera* (Schiff.). They are similar to the structures described by H. Eltringham (*Trans. ent. Soc. Lond.* **1925** : 1) in *Xylophasis* and *Phlogophora.*

(B). *Leucania comma* (L.) males have in the pleural region of segment 2 inflatable hairy structures two-thirds the length of the forewings. At rest the hairs from each side lie in fascicles tucked into a median ventral pocket in the second segment. The scent is quite unlike almonds. *L. putrescens* Hüb. and *L. obsoleta* (Hüb.) have similar structures which are otherwise unknown. Pierce (*loc. cit.*) noted that these three species have genitalia distinct from those of other *Leucania* species.

(C). *Leucania pudorina* (Schiff.) has no trace of the hair fascicles or folds or pockets found in types A or B.

The exhibit was illustrated by specimens. These were prepared as transparencies for a 2 in. × 2 in. projector by boiling in lactic acid, staining in carbol fuchsin and mounting in canada balsam. Dry, inflated scent fans were either mounted direct between glass plates or wetted with xylol and mounted in canada balsam. These techniques had many uses.

The President said, in reply to an enquiry by Miss Rothschild, that he was doubtful how far these structures were of taxonomic value. He had mentioned the subject to Professor Th. Dobzhansky when he was in England recently and he had suggested that if a species had a mating routine in which male scent played a definite part, one way of speciation was for one group to lose the structure, and it could well be a case where speciation had proceeded by loss of a structure.

Mr. C. N. Hawkins asked if any information had been derived from crossing species with and without the structure, to which the President replied that there was none, so that their real function was not known, and there was no evidence of the effect on pairing if the structures were removed.

Dr. D. J. Lewis gave a paper on Simuliidae in northern Venezuela, an abstract of which appeared on page 29. In the discussion which followed, Dr. Lewis said, in reply to an enquiry by Mr. R. W. Crosskey, that the differences between the cocoons of some neotropical species of *Simulium* were more striking than between those of African species. Mr. Crosskey remarked that the killing of fish by larvicides in Nigeria caused pleasure rather than the concern it did in Venezuela.

Miss Rothschild asked if there was any method of telling externally whether the flies were infected. Dr. Lewis replied that parous flies of some African species could often be recognised by the small size of the abdomen (containing little fat-body), and that most parous females of some simuliid species could be distinguished by the appearance of their haltere knobs.

Miss Rothschild continued that when fish were the intermediate host of a parasite their sight was often affected by larval worms which rendered them an easier prey for the final host. Dr. Lewis replied that the final host of the trematode parasite of *Simulium exiguum* Roubaud was not known and that it might feed on the larvae or pupae of the insect.

Mr. M. E. Solomon asked whether larvicides used in Venezuela had killed not only simuliids but other insects which serve as food for fish. Dr. Lewis said that no information on this point was available and drew attention to current investigations at the Liverpool School of Tropical Medicine, which may lead to the production of a selective larvicide for *Simulium*. Mr. Crosskey added that in Nigeria larvae of mayflies and dragonflies were not affected by the low concentration sufficient to kill the *Simulium* larvae. The mortality in fish was due to accumulation of carrier oil in pools ; low concentrations were normally quite safe.

Mr. M. W. Service asked whether the man and donkey, standing ten metres apart and used as bait, were close enough to be bitten by flies attracted by each other. Dr. Lewis replied that this was a complex subject and that sufficiently detailed observations were not possible in the brief time available.

Mr. G. Surtees gave a paper entitled " Experimental studies on vertical stratification in some grain-infesting beetles ", an abstract of which appeared on page 29.

In the discussion which followed Mr. J. M. Holborn asked whether the distribution figures had been checked by breeding experiments. Mr. Surtees replied that so far this had only been done superficially with *Sitophilus*, where the distribution of eggs did agree with the observed distribution of adults.

Professor O. W. Richards said it was difficult to understand what made the insects move about under the constant conditions of the experiment, unless it was some inherited rhythm. Mr. Surtees replied that different breeding conditions were being tried to see what effect they had. Similar experiments with field insects sometimes gave an opposite picture and he thought the conditions under which they developed might influence the response of the adults.

Mr. C. N. Hawkins asked if any information was available on the sexes which come to the surface and on ageing. Mr. Surtees said these factors had not yet been studied, but there was possibly some difference in the females according to age.

The President having asked to what extent the insects aggregated naturally, Mr. Surtees replied that in some cases aggregation was greater under drier conditions.

Mr. L. P. Lefkovitch said that *Cryptolestes* species, if kept dry for, say, 12 weeks, choose damper conditions. Large species, however, might find it difficult to move about in large bulks, owing to pressure. Mr. Surtees said these factors had not yet been gone into.

PAUL FREEMAN, *Honorary Secretary.*

Additions to the Library

Presented

Collin, J. E. *British Flies.* Vol. VI. *Empididae.* Part 3, *Empidinae* (Hilaria *only*), *Hemerodrominae.* 8vo. Cambridge University Press, 1961. [The Publishers].

Zumpt, F. *ed. The Arthropod parasites of vertebrates in Africa south of the Sahara* (*Ethiopian Region*). Vol. 1. (*Chelicerata*). 4to. 1961. [*Publ. S. Afr. Inst. med Res.* Vol. 9, No. 1]. [The Publishers].

Purchased

General Catalogue of the Homoptera. Fasc. VII. *Cercopoidea*, Part 2, *Cercopidae*, by Z. P. Metcalf. 8vo, North Carolina State College, 1961.

Insects of Micronesia. 8vo. Honolulu, 1960.

Vol. 7, No. 6. *Hemiptera : Saldidae*, by C. J. Drake.
Vol. 8, No. 3. *Neuroptera : Hemerodiidae*, by F. M. Carpenter.
Vol. 14, No. 4. *Siphonaptera*, by G. H. E. Hopkins.
Vol. 16, No. 3. *Coleoptera : Dermestidae*, by R. S. Beal, *Jr.*

Perrier, R. *La Faune de France en tableaux synoptiques illustrés.*
Tome 3, I. *Myriapodes*, II. *Insectes inférieurs.* Nouvelle édition, 1954.
Tome 5. *Coléoptères.* 1 *ière* partie, 1961.
Tome 6. *Coléoptères.* 2 *ième* partie, 1961. 8vo, Paris.

Tabuchi, Y. *The Alpine Butterflies of Japan. Their life history* Honshû. 4to. Tokyo, 1959.

Die Tierwelt Deutschlands. Teil 46. *Geradflügler oder Orthopteren* (*Blattodea, Mantodea, Saltatoria, Dermaptera*) by K. Harz. 4to. Jena, 1960.

In addition separates have been presented by Mr. P. R. Barratt; Mr. T. A. W. Davis; Dr. T. Clay; Rothamsted Experimental Station; Mr. J. F. Burton; Lancashire and Cheshire Entomological Society; Dr. E. T. Giles; Mr. A. Neboiss; United States Department of Agriculture; United States National Museum; American Entomological Society; Dr. R. Barras; Mr. A. P. Gupta; Dr. R. C. Fisher; Dr. W. J. Le Quesne; Mr. O. S. Flint; Mrs. V. Golding; Dr. D. J. Lewis; Mr. W. N. Beesley; Mr. G. C. Martin; Professor O. W. Richards and Dr. N. Waloff; Professor T. A. F. Jaczewski; Department of Parasitology, Ontario Research Foundation; Mr. R. G. Pearson; Ministry of Agriculture, Fisheries and Food, Tolworth; and Dr. D. L. Milne.

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